

**plastic city:
AN OCEAN-BASED
solution to human
life in the future**

TTAI - 2020





SPACE FRAME technology:

The main body and buildings of the city are made of modular lightweight metal structures. Similar to a truss system, space frames are comprised of interlocking struts forming geometric patterns that transmit flexing loads as tension and compression¹



Plastic hinges² and computer-controlled systems enable spaces to change their shape in order to respond to changes in temperature or weather. The adaptive shape allows heat to be preserved in cooler days and collected in warmer ones via solar panels.

GEN CITY GY

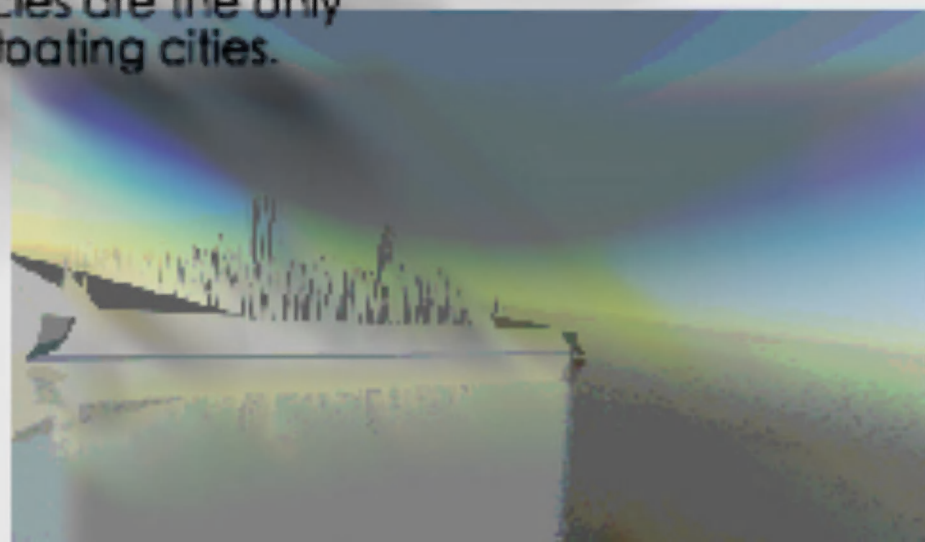
solar
+
wind
+
tidal

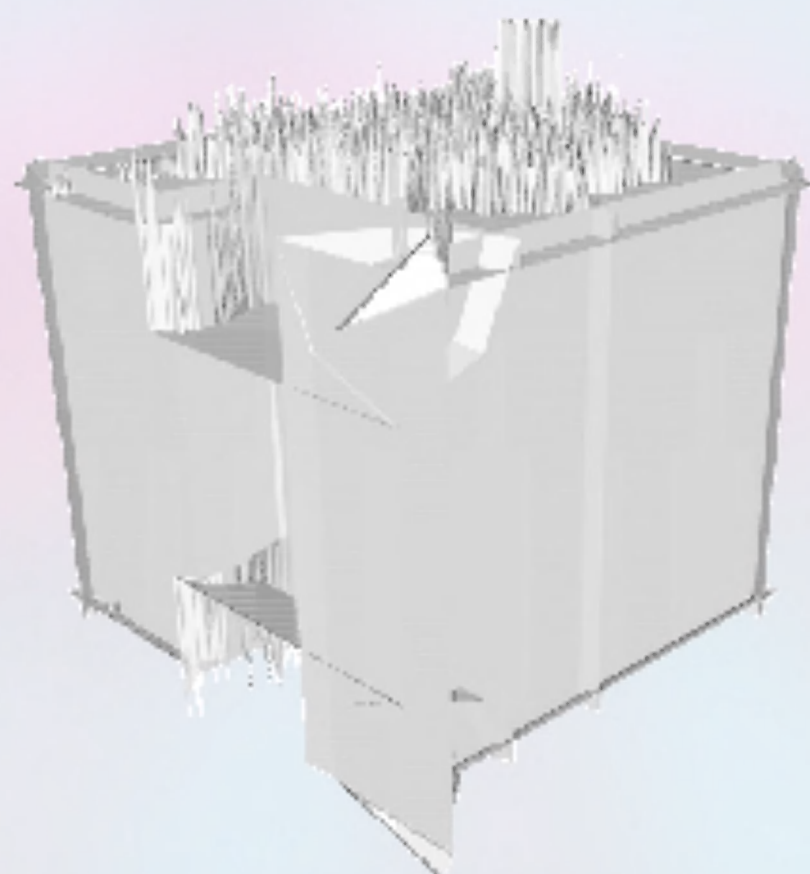
in the ocean, renewable energy sources such as sunshine, wind, and tidal currents are available to be collected within the city or near its coastline.

The main function of the plastic city is to filter microplastic from oceanwater and collect plastic waste from the ocean. The collected plastic can then be recycled into usable construction material or broken down into constituent parts and used as a fuel source.

Processes taking place in anaerobic (low oxygen) environments such as cold-plasma pyrolysis can convert plastic into fuel.³

Housing populations between 10,000–1 million people, circular energy cycles are the only sustainable way to power floating cities.

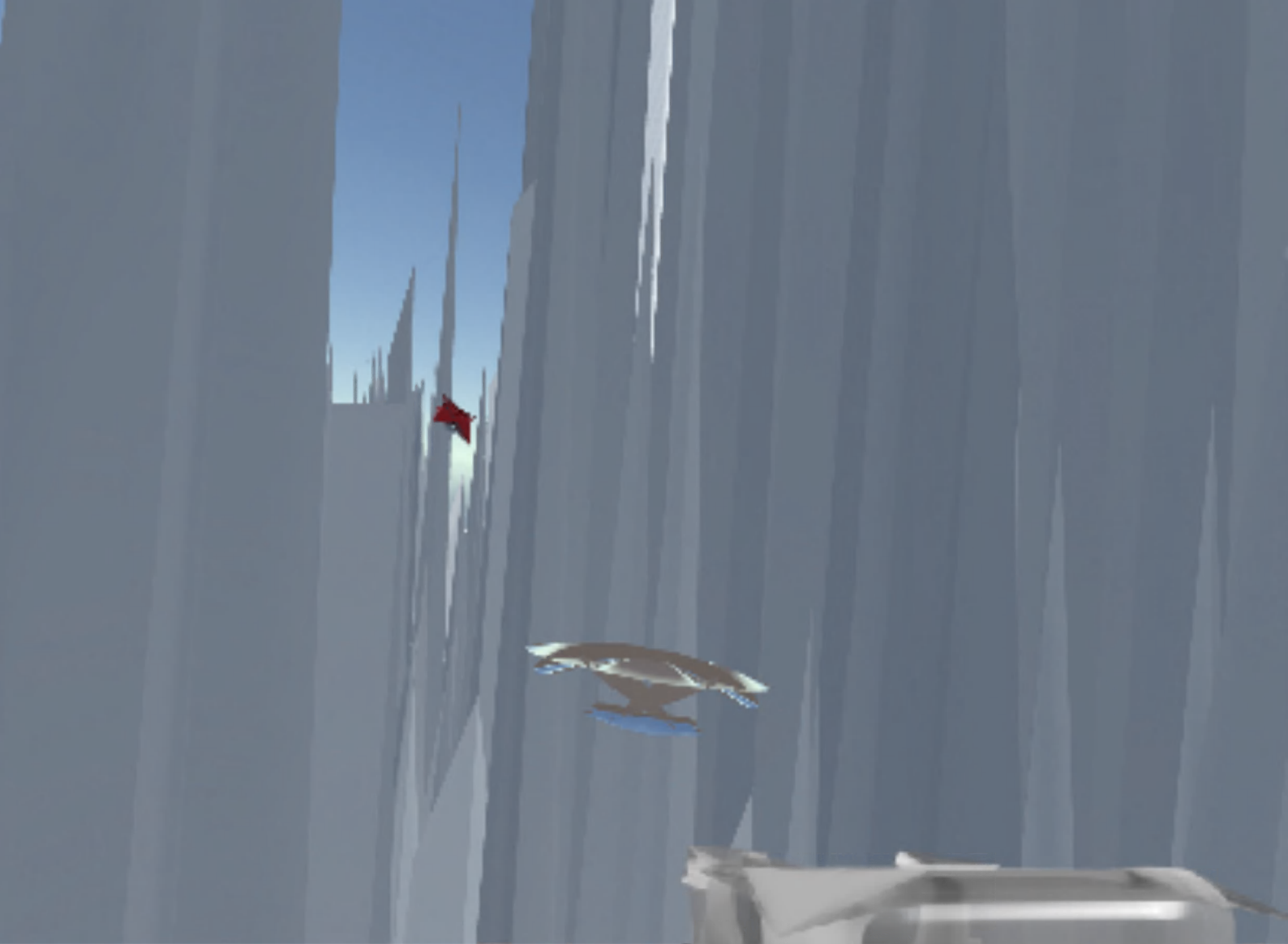




circular systems:

the plastic city runs on several important closed-loop systems: waste-to-energy and circular economics.⁴ Since its infrastructure is mostly based on ecological restoration, the governing system is based on technological efficiency and a measurement of its residents' quality of life.





transit:

Gliders and motorized air vehicles, water vehicles, and electrified road and rail vehicles are common forms of transportation.

Synthetic fuel and plastic-derived ethanol⁵ enables fast travel inside and outside of the city, while the majority of transit remains electricity powered.

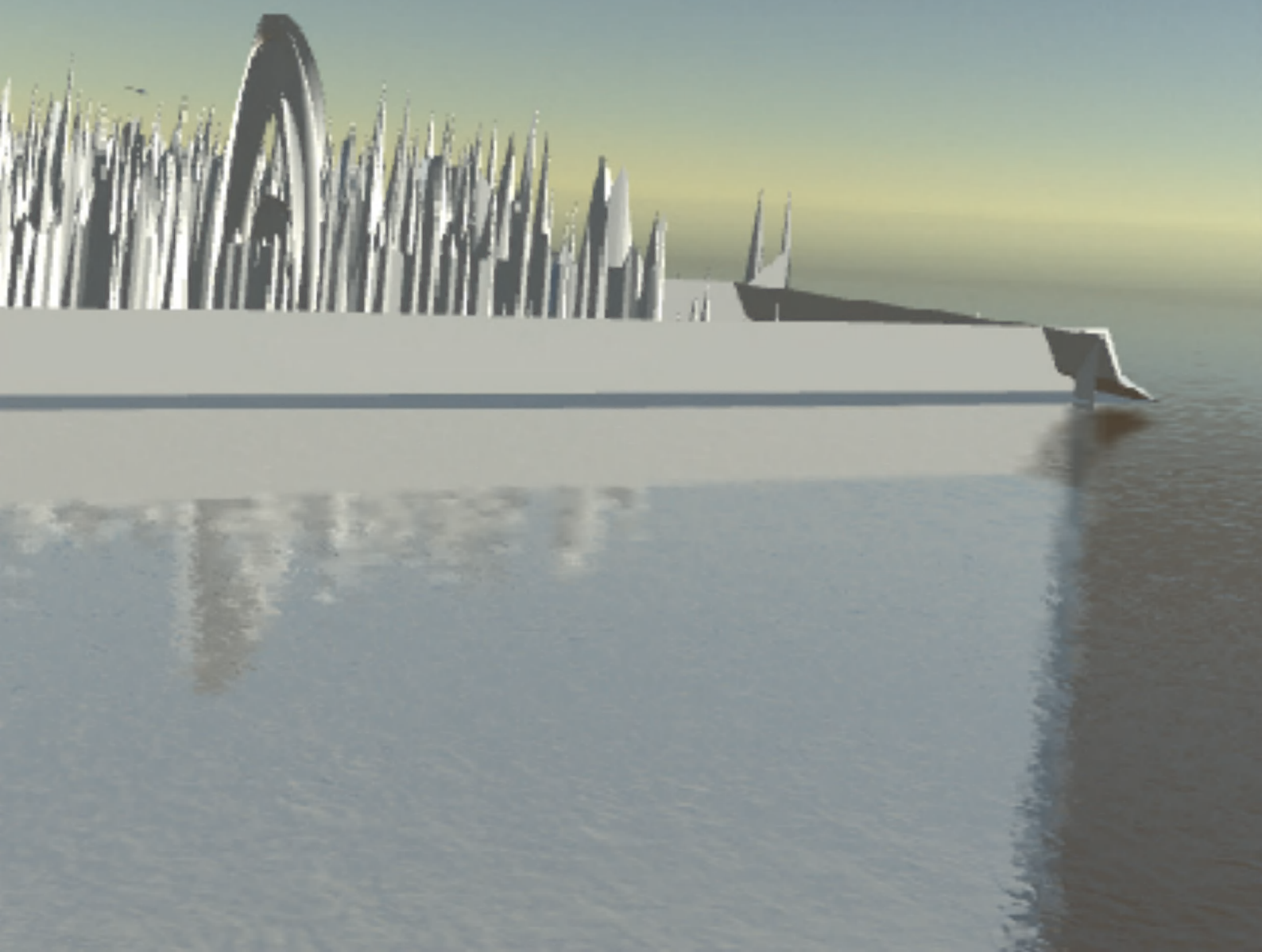


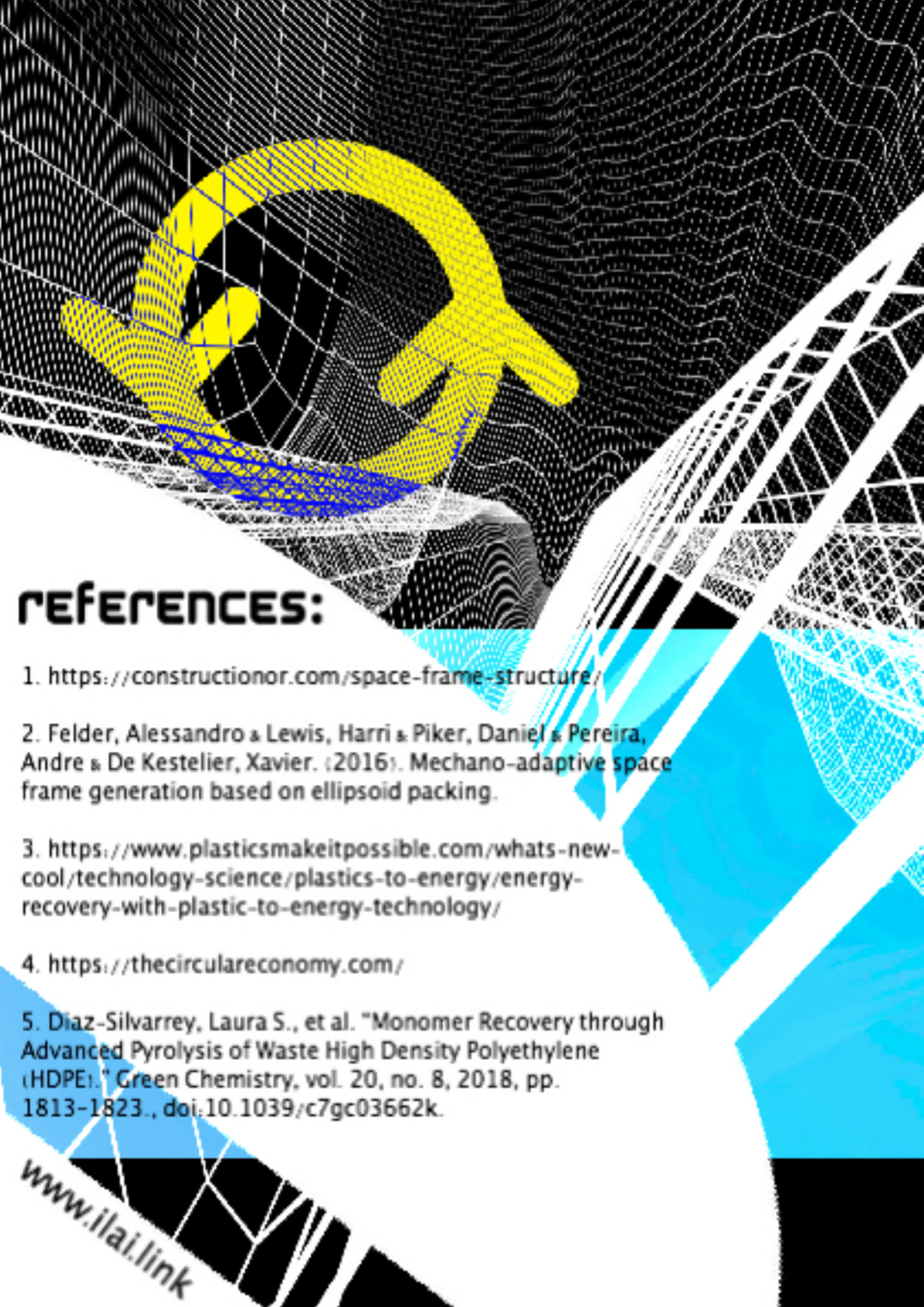
multi-dimensional spaces:

The concert halls, parks, magnetic transit lines, beaches, and buildings are only the surface level features of the city.

The plastic city is shaped like a cube which has plentiful indoor spaces extending downwards. The modular inner construction enables city dwellers to rearrange any space to fit their needs.

for video information on the inner infrastructure of the city and documentation city life, including the music, art, and anti-gravity racing nature-cultures, please visit <https://www.youtube.com/watch?v=H3Y7pmYTmRs>
[11ai - self patcher (official music video) "plastic city"]





REFERENCES:

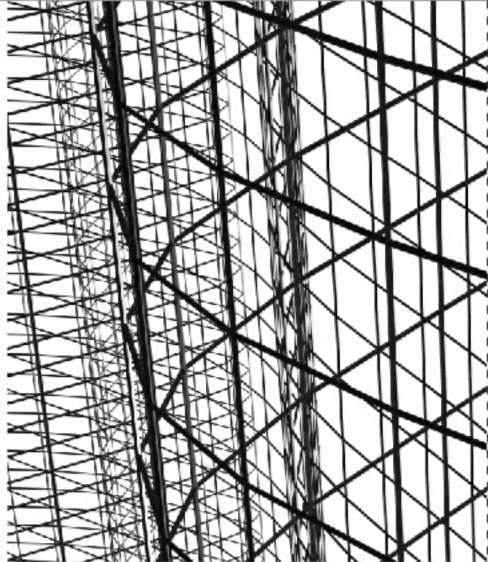
1. <https://constructionor.com/space-frame-structure/>
2. Felder, Alessandro & Lewis, Harri & Piker, Daniel & Pereira, Andre & De Kestelier, Xavier. (2016). Mechano-adaptive space frame generation based on ellipsoid packing.
3. <https://www.plasticsmakeitpossible.com/whats-new-cool/technology-science/plastics-to-energy/energy-recovery-with-plastic-to-energy-technology/>
4. <https://thecirculareconomy.com/>
5. Diaz-Silvarrey, Laura S., et al. "Monomer Recovery through Advanced Pyrolysis of Waste High Density Polyethylene (HDPE)." *Green Chemistry*, vol. 20, no. 8, 2018, pp. 1813-1823., doi:10.1039/c7gc03662k.



space frame technology:

The main body and buildings of the city are made of modular lightweight metal structures. Similar to a truss system, space frames are comprised of interlocking struts forming geometric patterns that transmit flexing loads as tension and compression.¹

Plastic hinges² and computer-controlled systems enable spaces to change their shape in order to respond to changes in temperature or weather. The adaptive shape allows heat to be preserved in cooler days and collected in warmer ones via solar panels.



plastic city: an ocean-based solution to human life in the future



TLAJ - 2020

references:

1. <https://constructionor.com/space-frame-structure/>
2. Felder, Alessandro & Lewis, Harri & Piker, Daniel & Pereira, Andre & De Kestelier, Xavier. (2016). Mechano-adaptive space frame generation based on ellipsoid packing
3. <https://www.plasticismakeitpossible.com/whats-new-cool/technology-science/plastics-to-energy/energy-recovery-with-plastic-to-energy-technology/>
4. <https://thecirculareconomy.com/>
5. Diaz-Silvarrey, Laura S., et al. "Monomer Recovery through Advanced Pyrolysis of Waste High Density Polyethylene (HDPE)." *Green Chemistry*, vol. 20, no. 8, 2018, pp. 1813-1823. doi:10.1039/c7gc03662k.



Processes taking place in anaerobic (low oxygen) environments such as cold plasma pyrolysis can convert plastic into fuel.³

Housing populations between 10,000-1 million people, circular energy cycles are the only sustainable way to power floating cities.

ENERGY

+ solar
+ wind
+ tidal

In the ocean, renewable energy sources such as sunshine, wind, and tidal currents are available to be collected within the city or near its coastline.

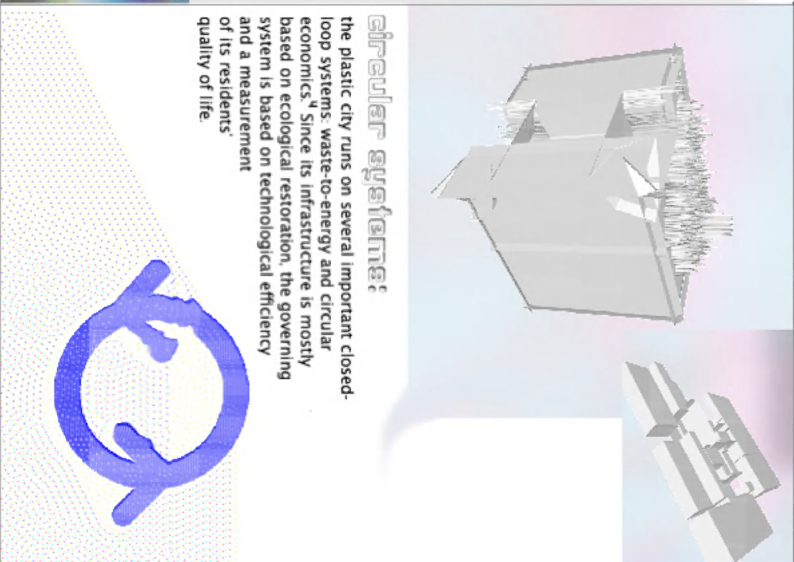
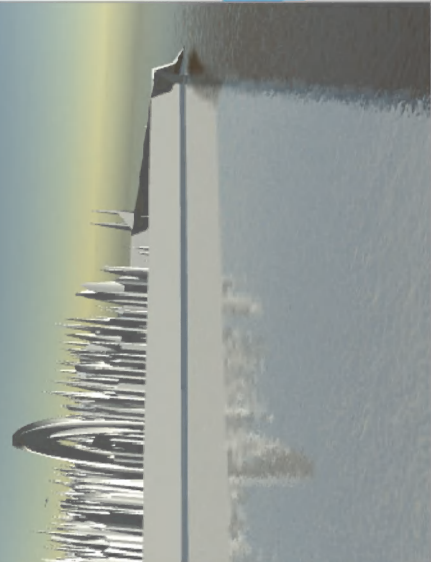
The main function of the plastic city is to filter microplastic from oceanwater and collect plastic waste from the ocean. The collected plastic can then be recycled into usable construction material or broken down into constituent parts and used as a fuel source.

multi-dimensional spaces:

The concert halls, parks, magnetic transit lines, beaches, and buildings are only the surface level features of the city.

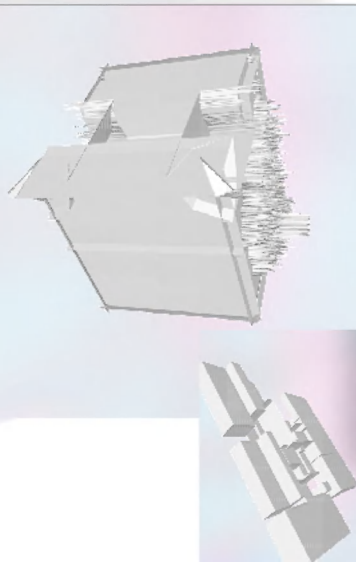
The plastic city is shaped like a cube which has plentiful indoor spaces extending downwards. The modular inner construction enables city dwellers to rearrange any space to fit their needs.

for video information on the inner infrastructure of the city and documentation city life, including the music, art, and anti-gravity racing nature-cultures, please visit <https://www.youtube.com/watch?v=H3Y7pmYfM8s> [Tlal - self patcher (official music video) 'plastic city']



airpauler equilibrium:

the plastic city runs on several important closed-loop systems: waste-to-energy and circular economics.⁴ Since its infrastructure is mostly based on ecological restoration, the governing system is based on technological efficiency and a measurement of its residents' quality of life.



transit:

Gliders and motorized air vehicles, water vehicles, and electrified road and rail vehicles are common forms of transportation.

Synthetic fuel and plastic-derived ethanol⁵ enables fast travel inside and outside of the city, while the majority of transit remains electricity powered.

